

--4. (Twice Amended) A power supply comprising:

an AC/DC converter which receives AC power having an AC input voltage, converts the AC power into DC power, and outputs the DC power, the AC/DC converter including a control circuit which controls an output voltage of the DC power output from the AC/DC converter, wherein the control circuit controls the output voltage of the DC power of the AC/DC converter to be equal to a predetermined DC voltage higher than an effective value of the AC input voltage;

a DC/DC converter which receives the DC power from the AC/DC converter and controls a level of an output voltage of the DC/DC converter to be equal to a level of a voltage to be used by a load to provide a controlled output voltage of the DC/DC converter while the DC/DC converter supplies the controlled output voltage of the DC/DC converter to the load;

a DC converter which is connected to an input of the DC/DC converter; and

DC power storage means which supplies electric power to the DC/DC converter through the DC converter;

wherein the DC converter is bidirectional to enable the DC converter to charge and discharge the DC power storage means;

wherein the DC converter controls an output voltage of the DC converter to be boosted over a voltage of the DC power storage means and to be substantially equal to the output voltage of the DC power of the AC/DC converter which is controlled to be equal to the predetermined DC voltage

higher than the effective value of the AC input voltage while the DC converter supplies the electric power received from the DC power storage means to the input of the DC/DC converter;

wherein the DC converter includes:

a first converter having an AC terminal, and a DC terminal connected to the input of the DC/DC converter;

a transformer having a high-voltage side winding connected to the AC terminal of the first converter, and a low-voltage side winding; and

a second converter having an AC terminal connected to the low-voltage side winding, and a DC terminal connected to the DC power storage means; and

wherein the transformer separates the DC power storage means from the AC/DC converter and from the DC/DC converter.--

--8. (Twice Amended) A power supply comprising:

an AC/DC converter which receives AC power having an AC input voltage, converts the AC power into DC power, and outputs the DC power, the AC/DC converter including a control circuit which controls an output voltage of the DC power output from the AC/DC converter, wherein the control circuit controls the output voltage of the DC power of the AC/DC converter to be equal to a predetermined DC voltage higher than an effective value of the AC input voltage;

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a DC/DC converter which receives the DC power from the AC/DC converter and controls a level of an output voltage of the DC/DC converter to be equal to a level of a voltage to be used by a load to provide a controlled output voltage of the DC/DC converter while the DC/DC converter supplies the controlled output voltage of the DC/DC converter to the load;

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a DC converter which is connected to an input of the DC/DC converter; and


DC power storage means which supplies electric power to the DC/DC converter through the DC converter;

wherein the DC converter is bidirectional to enable the DC converter to charge and discharge the DC power storage means;

wherein, when electric power is interrupted or the AC/DC converter cannot maintain sufficient electric power output to be consumed by the load, the DC converter controls an output voltage of the DC converter to be boosted over a voltage of the DC power storage means and to be substantially equal to the output voltage of the DC power of the AC/DC converter which is controlled to be equal to the predetermined DC voltage higher than the effective value of the AC input voltage while the DC converter supplies the electric power from the DC power storage means to the input of the DC/DC converter;

wherein the DC converter includes:

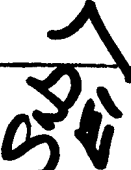
a first converter having an AC terminal, and a DC terminal connected to the input of the DC/DC converter;


 a transformer having a high-voltage side winding connected to the AC terminal of the first converter, and a low-voltage side winding; and

a second converter having an AC terminal connected to the low-voltage side winding, and a DC terminal connected to the DC power storage means; and

wherein the transformer separates the DC power storage means from the AC/DC converter and from the DC/DC converter.--

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 --20. (Twice Amended) A power supply comprising a plurality of power supply units connected in parallel with one another, wherein each of the plurality of power supply units includes:

 an AC/DC converter which receives AC power, converts the AC power into DC power, and outputs the DC power, the AC/DC converter including a control circuit which controls an output voltage of the DC power output from the AC/DC converter, wherein the control circuit controls the output voltage of the DC power of the AC/DC converter to be equal to a predetermined DC voltage;

a DC/DC converter which receives the DC power from the AC/DC converter, and controls a level of an output voltage of the DC/DC converter to be equal to a level of a voltage to be used by a load while the DC/DC converter supplies the output voltage to the load;

a DC converter which is connected to an input of the DC/DC converter; and

DC power storage means which supplies electric power to the DC/DC converter through the DC converter, the DC converter being bidirectional to charge and discharge the DC power storage means;

wherein the control circuit controls the output voltage of the DC power of the AC/DC converter to be equal to a predetermined DC voltage on the basis of ON/OFF actuation of a semiconductor switching device of a main circuit of the AC/DC converter and effects control to suppress harmonic current in the received AC power; and

wherein the DC converter controls an output voltage of the DC converter to be substantially equal to the output voltage of the DC power of the AC/DC converter which is controlled to be equal to the predetermined DC voltage while the DC power storage means supplies electric power to the DC/DC converter through the DC converter.--

--22. (Twice Amended) A power supply comprising a plurality of power supply units connected in parallel with one another, wherein each of the plurality of power supply units includes:

an AC/DC converter which receives AC power, converts the AC power into DC power, and outputs the DC power, the AC/DC converter including a control circuit which controls an output voltage of the DC power output from the AC/DC converter, wherein the control circuit controls the output voltage of the DC power of the AC/DC converter to be equal to a predetermined DC voltage;

1. a DC/DC converter which receives the DC power from the AC/DC converter, and controls a level of an output voltage of the DC/DC converter to be equal to a level of a voltage to be used by a load while the DC/DC converter supplies the output voltage to the load;

2. a DC converter which is connected to an input of the DC/DC converter; and

3. DC power storage means which supplies electric power to the DC/DC converter through the DC converter, the DC converter being bidirectional to charge and discharge the DC power storage means;

4. wherein the control circuit controls the output voltage of the DC power of the AC/DC converter to be equal to a predetermined DC voltage on the basis of ON/OFF actuation of a semiconductor switching device of a main circuit of the AC/DC converter and effects control to suppress harmonic current in the received AC power; and

5. wherein the DC converter includes a plurality of multiplexed DC converters connected in parallel.--